

## Claims

WHAT IS CLAIMED IS:

- 5 1. A method for de-interlacing interlaced video using a graphic processor comprising the steps of:
- receiving at least one instruction for a 2-D/3-D engine to facilitate creation of an adaptively de-interlaced frame image from at least a first interlaced field; and
- 10 performing, by the 2-D/3-D engine, at least a portion of adaptive de-interlacing based on at least the first interlaced field in response to the at least one instruction to produce at least a portion of the adaptively de-interlaced frame image.
- 15 2. The method of claim 1 including the step of storing the at least portion of the adaptively de-interlaced frame image for display.
3. The method of claim 2 including the step of retrieving, by a graphics processor display engine, the stored adaptively de-interlaced frame image for display on at least one display device.
- 20 4. The method of claim 1 wherein the step of performing adaptive de-interlacing by the 2-D/3-D engine includes executing 2D/3D instructions that result in performing median filtering.
- 25 5. The method of claim 1 wherein the step of performing adaptive de-interlacing by the 2-D/3-D engine includes executing 2D/3D instructions that result in performing spatio-temporal filtering.
- 30 6. The method of claim 1 including the step of controlling the 2D/3/D engine to perform the adaptive de-interlacing prior to display by a display engine.

7. The method of claim 1 including the step of issuing 2D/3D instructions to the 2D/3D engine to carry out de-interlacing of lines of video data from interlaced fields.

8. The method of claim 1 wherein the at least one instruction includes at least of a:  
5 line inverting instruction, a scaling instruction and a blend instruction.

9. The method of claim 1 including the step of determining whether the at least one instruction is for the 2D/3D engine or for a display engine.

10. A method for de-interlacing interlaced video using a graphic processor  
10 comprising the steps of:  
determining whether at least one received instruction is for a 2D/3D  
engine or for a display engine;  
receiving the at least one instruction for the 2-D/3-D engine to facilitate  
creation of an adaptively de-interlaced frame image from at least a first interlaced field;  
15 performing, by the 2-D/3-D engine, at least a portion of adaptive de-  
interlacing based on at least the first interlaced field in response to the at least one  
instruction to produce at least a portion of the adaptively de-interlaced frame  
image; and  
retrieving, by a graphics processor display engine, the stored adaptively  
20 de-interlaced frame image, generated by the 2D/3D engine, for display on at least  
one display device.

11. The method of claim 10 including the step of storing the at least portion of the  
adaptively de-interlaced frame image for display.

12. The method of claim 10 wherein the step of performing adaptive de-interlacing by  
the 2-D/3-D engine includes determining non-motion between a plurality of pixels based  
on spatial-temporal filtering.

13. The method of claim 10 including the step of controlling the 2D/3D engine to  
30 perform the adaptive de-interlacing prior to display by a display engine.



16. A storage medium containing executable instructions that when executed by one or more 2D/3D engines, causes the one or more 2D/3D engines to:

receive at least one instruction to facilitate creation of an adaptively de-interlaced frame image from at least a first interlaced field; and

perform at least a portion of adaptive de-interlacing based on at least the first interlaced field in response to the at least one instruction to produce at least a portion of the adaptively de-interlaced frame image.

17. The storage medium of claim 16 including instructions that causes the one or more 2D/3D engines to store the at least portion of the adaptively de-interlaced frame image for display.

18. The storage medium of claim 16 including instructions that causes one or more graphics processor display engines to retrieve the stored adaptively de-interlaced frame image for display on at least one display device.

19. The storage medium of claim 16 including instructions that causes the one or more 2D/3D engines to executing 2D/3D instructions that result in performing median filtering.

20. The storage medium of claim 16 including instructions that causes one or more processing devices to control the 2D/3D engine to perform the adaptive de-interlacing prior to display by a display engine.

21. The storage medium of claim 16 including instructions that causes one or more processing devices to issue 2D/3D instructions to the 2D/3D engine to carry out de-interlacing of lines of video data from interlaced fields on a pixel by pixel basis.

22. The storage medium of claim 16 wherein the at least one instruction includes at least of a: line inverting instruction, a scaling instruction and a blend instruction.

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